UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

OCT 19 1998

MEMORANDUM

SUBJECT: An Experimental Use Permit (EUP) for a New Product Amplify® Sprout Inhibitor (EPA File Symbol 34704-EUP-RG) To Be Applied (post harvest) on Stored Potatoes and a Temporary Tolerance Exemption (PP# 8G05008) for New Active Ingredient 2,6- Diisopropylnaphthalene on Potatoes During Storage. Chemical No.055803; Review of Product Chemistry and Magnitude of Residues in or on Potatoes. MRID Nos. 446141-01, -02, -03, and 13; Submission No. S549087; DP Barcode No. D249753

FROM: Freshteh Toghrol, Ph.D., Senior Scientist F. Toghrol
Biochemical Pesticides Branch
Biopesticides & Pollution Prevention Division (7511C)

TO: Rita Kumar, Regulatory Action Leader
Biochemical Pesticides Branch
Biopesticides & Pollution Prevention Division (7511C)

ACTION REQUESTED

Platte Chemical Co. Inc. requests an experimental use permit to ship 1,500 pounds of Amplify® Sprout Inhibitor (EPA File Symbol 34704-EUP-RG) containing 99.7% 2,6- Diisopropyl-naphthalene. Amplify will be applied as an aerosol on approximately 90 million pounds of stored potatoes during 1998-1999. The EUP will be conducted in potato storage facilities located in Idaho, Maine, Minnesota, North Dakota, Oregon, Washington, and Wisconsin. Stored potatoes will be treated in one or two facilities in each state. According to the proposed label for this EUP, Amplify will be applied at the rate of 0.1 pound active ingredient per 600 cwt of potatoes, to suppress sprouting for up to two month. Repeated applications may be required depending on the physiological age of potatoes due to stress during the growing season or storage conditions.

To support this EUP, the registrant has also submitted a temporary tolerance exemption petition (PP# 8G05008), product chemistry studies (MRID Nos. 446141-01, -02, -03), residue

chemistry data (MRID 446141-13),and toxicological studies (not reviewed in this memo), a CSF dated 7/23/98, and a proposed label for the EUP.

BPB'S RECOMMENDATIONS for EUP

BPPD has no objection to this EUP (File Symbol 34704-EUP-RG) and the temporary exemption from the requirement of a tolerance for the residues of 2,6-isopropylnaphthalene on stored potatoes during 1998-1999, provided that the submitted toxicity studies also support this EUP and the tolerance exemption.

BPB's Conclusions Regarding the EUP

1. The submitted product chemistry data (MRID Nos. 446141-01, -02, and -03) satisfy the data requirements for Amplify ® Sprout Inhibitor containing 99.7% Diisopropyl naphthalene (File Symbol 34704-EUP-RG) regarding product identity (151-10), manufacturing process (GLN 151-11), discussion of formation of unintentional ingredients (GLN 151-12), preliminary analysis of samples (GLN 151-13), the analytical method (GLN 151-16), and physical/Chemical properties (GLN 151-17). No additional data are required.

2. Product identity (GLN 151-10) is acceptable. The active ingredient's common name is 2,6-Diisopropyl naphthalene (2,6-DIPN). The chemical name of the active ingredient is Naphthalene, 2,6-bis (1-methylethyl) , also known as 2,6-bis(1-methylethyl)naphthalene); CAS No. 24157-81-1; molecular weight 212.33 and molecular formula C_{16} H_{20}. For the structural formula, please see the residue chemistry review.

3. The submitted analytical method (GLN 151-16) is acceptable. The GC/FID analytical method was used to determine the concentration of the active ingredient 2,6-Diisopropyl-naphthalene in the product. The description of analytical method and chromatograms were provided.

4. Preliminary analysis of samples (GLN 151-15) is acceptable. Five samples from five batches of Amplify were analyzed for 2,6-DIPN. The results show the concentration of the active ingredient are 99.3%, 99.5%, 99.7%, 99.5%, and 100.2%, and there was no significant difference among the means from each of the batches. The submitted CSF for the end-use product dated 7/23/98 is acceptable.

5 Based on preliminary analysis and the CSF, the registrant must submit a revised label, for Amplify to indicate that the concentration of the active ingredient 2,6-Diisopropylnaphthalene 99.7 and other ingrednt 0.3%.

6. Platte submitted some residue data, which are summarized here. A field trial/post harvest fumigation study was conducted using 2,6-DIPN, an experimental fumigant, to determine the amount of 2,6-DIPN in potatoes or potato skins (peels) stored up to 180 days. A gas chromatography method with flame ionization detector was used to measure the residues

of 2,6-DIPN in the extracts. The recovery for 2,6-DIPN extracted from potatoes ranged from 60% to 133%. Two test groups were used. In Treatment 1, potatoes were fumigated once with 20 ppm 2,6-DIPN/lb and stored in the drums for 180 days after treatment. Samples were periodically removed from the drums and sent to the laboratory for analysis as frozen whole potatoes or fresh potatoes. Fresh potatoes were peeled at the laboratory and the peels frozen for analysis. In Treatment 2, the potatoes received three fumigation treatments for a total of 60 ppm 2,6-DIPN/lb. The treatments were applied on Days 0, 60, and 120 of storage. Samples were taken periodically up to 180 days following the initial treatment. The results of the field trial/post harvest fumigation were 1.09 ppm, 0.30 ppm, 0.08 ppm, and 0.04 ppm for whole potatoes treated with 20 ppm/lb 2,6-DIPN, and tested on days 0, 30, 90, and 180 respectively. The results for the potato peels for the 20 ppm/lb treatment are 3.42 ppm, 2.12 ppm, 0.52 ppm and 0.21 ppm for day 0, 30, 90, and 180, respectively. The results for Treatment 2 which received a total of 60 ppm 2,6-DIPN/lb were 1.17 ppm, 0.31 ppm, 1.43 ppm, 0.44 ppm, 1.60 ppm, and 0.18 ppm for whole potato samples on days 0, 30, 60, 90, 120, and 180, respectively. The results for potato peels from the 60 ppm/lb test were 2.75 ppm, 1.90 ppm, 3.21 ppm, 1.33 ppm, 3.23 ppm, and 0.84 ppm for samples on days 0, 30, 60, 90, 120, and 180, respectively.

Storage stability tests were conducted using untreated control potatoes. The potatoes were fortified to a level of 0.2 ppm and were either stored frozen (whole or extracts), as peels at ambient temperatures, or as peels at freezer temperatures (whole or extracts). The mean % recovery of 2,6-DIPN in frozen whole potatoes was 81.4% at day 0 and 110.3% after 9 months of frozen storage. The mean % recovery ranged from 133.4 to 75.2%. The mean % recovery of 2,6-DIPN in potato peels held at ambient temperatures was 83.0% on day 0 and 70.6% on day 7. The mean % recovery ranged from 66.2% to 83.0%. The mean % recovery of 2,6-DIPN in potato peels stored in the freezer was 83.0% on day 0 and 85.8% after three weeks. The mean % recovery ranged from 80.6% to 87.6%.

The study satisfies Guidelines 860.1500 Field Trial/Post Harvest-Fumigation and 860.1380 Storage Stability Data and is Acceptable for this EUP and temporary tolerance exemption.

7. The percent recovery of 2,6-DIPN extracted from potatoes ranged from 60% to 133% (see conclusion 6 above). This high variation in percent recovery is indicative of the presence of interfering substances in the extract; therefore, the submitted residue data are not reliable. BPB recommends that the analytical laboratory modify its extracting technique to reduce this variation prior to seeking registration or a permanent tolerance exemption.

cc: F. Toghrol, Rita Kumar, BPPD's Subject File
F. Toghrol; BPPD; CM2-902: Tel: 703-308=7014.

DATA EVALUATION REPORT

AMPLIFY SPROUT INHIBITOR
2,6-Diisopropylnaphthalene

STUDY TYPE: Post-Harvest Storage (§ 171-4(c))
(Evaluated using Guideline 860.1500 Field Trial/Post Harvest-Fumigation and 860.1380 Storage Stability Data)

Prepared for

Biopesticides and Pollution Prevention Division
Office of Pesticide Programs
U.S. Environmental Protection Agency
2800 Crystal Drive
Arlington, VA 22202

Prepared by

Chemical Hazard Evaluation Group
Toxicology and Risk Analysis Section
Life Sciences Division
Oak Ridge National Laboratory
Oak Ridge, TN 37830
Task Order No. 24

Primary Reviewer:
Robin Brothers, Ph.D.

Signature: Robin Brothers
Date: _____

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Signature: _____
Date: _____

Quality Assurance:
Lee Ann Wilson, M.S.

Signature: _____
Date: _____

Disclaimer

This Data Evaluation Report may have been altered by the BPPD subsequent to signing by Oak Ridge National Laboratory personnel.

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EPA Reviewer: Freshteh Toghrol, Ph.D F. Toghrol Date, 10/16/97
Biopesticides & Pollution Prevention Division (7511W)

DATA EVALUATION REPORT

STUDY TYPES: Post-Harvest Storage (§ 171-4(c))
(Evaluated using Guidelines 860.1500 Field Trial/Post Harvest-Fumigation and 860.1380 Storage Stability Data)

CASE NO.: 290334

PC CODE: 055803

DP BARCODE: D249753

SUBMISSION NO.: S549087

MRID NO.: 44614113

TEST MATERIAL: AMPLIFY (2,6-diisopropylnaphthalene, 99.7%)

SYNONYMS: 2,6-DIPN, DIPN

STUDY NUMBERS: DARTEC No.: PLT-162, SIARCO No.: UAP-NW 97-001, CARDC No.: Platte 1300

SPONSOR: Platte Chemical Company, P.O. Box 667, Greeley, CO 80632

TESTING FACILITY:

Field:
SIARCO, Inc., 27080 Pearl Rd., Parma, ID 83660
Analytical:
Colorado Analytical Research & Development Corporation (CARDC), 4720 Forge Springs Rd, Suite 108, Colorado Springs, CO 80907

TITLE OF REPORT: DIPN (2,6-Diisopropylnaphthalene) Magnitude of the Residues in or on Potatoes - Post Harvest Storage.

AUTHORS: Gary Beaver, Ph.D. and Bruce D. Riggle, Ph.D.

REPORT ISSUED: July 1, 1998

EXECUTIVE SUMMARY: A field trial/post harvest fumigation study was conducted using 2,6-DIPN, an experimental fumigant, to determine the amount of 2,6-DIPN in potatoes or potato skins stored up to 180 days. Potatoes were grown under standard practices and treated with the standard anti-sprouting agent (CIPC, chlorpropham). The CIPC treatment was to assure constant potato quality. for treatment groups and controls, throughout the study as the potatoes were monitored for only 2,6-DIPN residues and not to assess 2,6-DIPN efficacy. Potatoes were placed in specially designed mini-warehouse, fumigation chambers. These were plastic 85 gallon drums that were fitted into a test chamber that allowed for airflow and condition controls. Two test groups were used. In Treatment 1, potatoes were fumigated once with 20 ppm 2,6-DIPN/lb and stored in the drums for 180 days after treatment. Samples were periodically removed from the drums and sent to the laboratory for analysis as frozen whole potatoes or fresh potatoes. Fresh potatoes were peeled at the laboratory and the peels frozen for analysis. In Treatment 2, the potatoes received three fumigation treatments for a total of 60 ppm 2,6-DIPN/lb. The treatments were applied on Days 0, 60 and 120 of storage. Samples were taken periodically up to 180 days following the initial treatment. The results of the field trial/post harvest fumigation had 1.09 ppm, 0.30 ppm, 0.08 ppm, and 0.04 ppm for whole potatoes treated with 20 ppm/lb 2,6-DIPN and tested on day 0,30, 90, and 180 respectively. The results for the potato peels for the 20 ppm/lb treatment are 3.42 ppm, 2.12 ppm, 0.52 ppm and 0.21 ppm for day 0, 30, 90, and 180, respectively. The results for Treatment 2 which received a total of 60 ppm 2,6-DIPN/lb were 1.17 ppm, 0.31 ppm, 1.43 ppm, 0.44 ppm, 1.60 ppm, and 0.18 ppm for whole potatoes samples on days 0, 30, 60, 90, 120, and 180, respectively. The results for potato peels from the 60 ppm/lb test are 2.75 ppm, 1.90 ppm, 3.21 ppm, 1.33 ppm, 3.23 ppm, and 0.84 ppm for samples on days 0, 30, 60, 90, 120, and 180, respectively.

Storage stability tests were conducted using untreated control potatoes. The potatoes were fortified to a level of 0.2 ppm and were either stored frozen (whole or extracts), as peels at ambient temperatures, or as peels at freezer temperatures (whole or extracts). The mean % recovery of 2,6-DIPN in frozen whole potatoes was 81.4% at day 0 and 110.3% after 9 months of frozen storage. The mean % recovery ranged from 133.4 to 75.2%. The mean % recovery of 2,6-DIPN in potato peels held at ambient temperatures was 83.0% on day 0 and 70.6% on day 7. The mean % recovery ranged from 66.2% to 83.0%. The mean % recovery of 2,6-DIPN in potato peels stored in the freezer was 83.0% on day 0 and 85.8% after three weeks. The mean % recovery ranged from 80.6% to 87.6%.

The study satisfies Guidelines 860.1500 Field Trial/Post Harvest-Fumigation and 860.1380 Storage Stability Data and is Acceptable.

COMPLIANCE: Signed and dated Data Confidentiality Statements and GLP Statements were provided. Quality Assurance Statements were provided for Validata, Serrano & Associates and CARDC.

I. MATERIALS AND METHODS

A. FIELD TRIAL/ POST HARVEST FUMIGATION

1. Location of trial

Southern Idaho Researchers and Consultants, Inc. (SIARCO), Parma, Idaho

2. Description of potatoes

Russet Burbank potatoes were grown near Parma, Idaho under standard agronomic practices including the application of standard field agricultural chemicals. The potatoes were allowed to go through their standard dormancy period before treatment. The potatoes were loose and not bagged.

3. Other treatments

All potatoes were treated with CIPC (chlorpropham), the industry standard sprout inhibitor. This treatment assured uniform quality potatoes throughout the duration of the project. 2,6-DIPN is being tested as a sprout inhibitor but the duration of efficacy was untested at the time of the study.

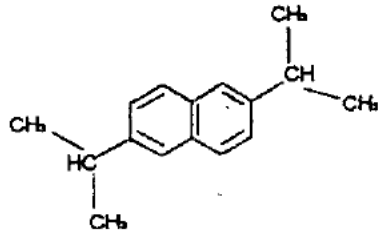
4. Fumigation chamber design

The fumigation chambers were miniature versions of commercial storage conditions. The chamber consists of an 85 gallon drum (4 feet long by 2 feet diameter) and has a perforated floor to raise potatoes off the bottom of the drum. The drum is fitted with a one-way valve to allow for air flow and the introduction of the fumigants. A refrigerated trailer has been adapted to serve as the storage unit for the test chambers. The trailer contains two shelves and 15 drums are placed on each shelf. Each shelf has a separate air supply and each drum has an individual air outlet. There is no airflow between drums. Temperature and humidity were maintained at an average of 9°C and 87.6% relative humidity, with airflow at ½ cubic foot per minute for each drum. Approximately 175 pounds of potatoes were placed in each drum. The potatoes were stored in each drum after fumigation for the duration of the test period.

5. Treatment chemical

AMPLIFY (2,6-diisopropylnaphthalene, 99.0%) from Platte Chemical Company, P.O. Box 667, Greeley, CO 80632. The purity was assayed at CARDC using a 2,6-DIPN standard from Acros Organics.

Structure:



6. Application method

The 2,6 DIPN was applied with a custom thermal fog generator. The dry crystalline 2,6-DIPN or liquid CIPC was placed in the preheated generator that was attached to the air inlet of each drum. The generator was allowed to run for five minutes. The airflow was left off for 24 hours following fumigation. The thermal fog generator operated at a temperature of 514-530°F.

7. Sampling

Eight tubers were randomly selected from each drum by hand. This approximated 4 pounds of potatoes. Plastic gloves were worn while sampling and were changed between drums.

8. Handling and shipping

Treated and control potatoes were stored and shipped separately. Some whole potatoes were placed in a plastic bags or Ziploc bags, frozen immediately at -20°C and held for 7-65 days prior to shipment to the laboratory by freezer truck. Some potatoes were placed in plastic or Ziploc bags and shipped to the laboratory fresh at ambient conditions by Federal Express. The potatoes were peeled at the laboratory and peels were then frozen at the laboratory.

9. Quality assurance

Good laboratory practices were followed. Temperature and humidity conditions were monitored regularly. Samples of plastic gloves, barrel floor plastic, barrel linings, plastic bags and Ziploc bags were provided to the laboratory for background analysis.

A. INSTRUMENTATION AND ANALYSIS

1. Location

Colorado Analytical Research and Development Corporation (CARDC), Colorado Springs, CO.

2. Analytical equipment:

A Hewlett Packard 1090 Series II Liquid Chromatograph with Zorbax ODS Column, acetonitrile mobile phase and 254 nm UV detector was used. The system was standardized with a five point standard curve and 100µl injections were used. The internal standard was valerphenone and the external standard was 2,6-DIPN (99.0% purity, Platte Chemical).

3. Sample preparation

Whole frozen potatoes or peels were composited under dry ice in a food processor or blender. The whole potato composite was kept frozen until ready for analysis. The potatoes were extracted with acetonitrile. A separation of the acetonitrile extract with hexane was performed and the hexane was evaporated to dryness. The residue was reconstituted in acetonitrile and filtered through an Acrodisc LC PVDF 0.45 micron filter prior to HPLC analysis.

The peel composite was kept frozen until analysis. The peels were extracted with acetonitrile. A separation of the acetonitrile extract was performed with hexane and the hexane was evaporated to dryness. The residue was reconstituted with hexane and purified using a Florisil column. The filtrate was evaporated to dryness and reconstituted with acetonitrile. The sample was filtered again through Acrodisc LC PVDF 0.45 micron filters and analyzed by HPLC. The peel method was used for the plastic samples and laboratory glassware samples.

4. Quality control

Good laboratory practices were followed. Samples of plastic materials from the field study and glass and Nalgene laboratory ware were tested for 2,6-DIPN content. Potatoes purchased from a local grocery store were also used in recovery tests and method development. Recovery tests were monitored regularly. Sample runs consisted of at least one control sample, one to three controls samples fortified with 2,6-DIPN and treatment samples. Tests for potential interferences such as CIPC and 1,4-dimethylnaphthalene (naturally occurring) were run to determine elution times and it was determined that there would be no interference from these chemicals in the analysis of 2,6-DIPN.

C. STORAGE STABILITY TEST

1. Location

Colorado Analytical Research and Development Corporation (CARDC), Colorado Springs, CO.

Equipment, sample preparation and quality control

As given above with the exception that potatoes from a local grocery store were used. Samples of whole potatoes and peels were fortified with 2,6-DIPN and analyzed after periods of frozen storage at -20°C. Storage stability samples were stored under the same conditions as the field samples. Some samples were immediately analyzed. Freshly spiked recovery samples were concurrently run along with stored test and control samples. Contingency samples were prepared to guard against loss. Frozen whole potato samples were stored in Ziploc bags. Frozen peel samples were stored in Teflon lined-lid, glass jars.

II STUDY DESIGN

A. FIELD TEST

1. Treatment group 1

The first treatment group received 20 ppm active ingredient/lb of 2,6-DIPN. This is the equivalent of the commercial use of 20 lbs 2,6-DIPN/1,000,000 lbs of potatoes. Three replicate treatment drums were used. Potatoes for whole frozen samples and fresh peels were sampled from the drums after 30 days, 90 days, and 180 days. Sample days may have varied by one or two days to allow for shipping time and receipt at the laboratory.

2. Treatment group 2

The second treatment group received three applications of 2,6-DIPN (20 ppm/lb, per application) for a total treatment of 60 ppm/lb. The second and third applications were 60 and 120 days after the first treatment (day 0), respectively. There were three replicate drums for this treatment. Potatoes for whole frozen samples and fresh peels were sampled from the drums on day 0, 30, 60, 90,120, and 180 after the first treatment. Sample days may have varied by one or two days to allow for shipping time and receipt at the laboratory.

3. Test chamber layout

In the test chamber 2 drums were designated as controls, 3 drums were 20 ppm/lb and 3 drums were 60 ppm/lb doses. The test levels were randomly assigned to the 30 possible locations in the test chamber.

B. LABORATORY ANALYSIS

The typical analysis sets consisted of 1 control (CIPC only), 1-3 controls fortified with 2,6-DIPN (to use for daily recovery tests), and an appropriate number of treatment groups samples. Fortification levels for potatoes and peels were 0.2 ppm and 1.0 ppm 2,6-DIPN. Plastic samples were fortified to 0.5 μg and 25 μg (equivalent to 0.02 ppm and 1.0 ppm for 25 gram samples). The lowest level of fortification was ten times the detection limit for peels and potatoes. Statistics performed included the means and standard deviations.

C. STORAGE STABILITY TESTS

Whole frozen potatoes were fortified with 0. 2 ppm 2,6- DIPN and analyzed after frozen storage at -20°C. The storage periods tested were two weeks, one month, three months, six months, and nine months. Day 0 samples were analyzed immediately. Two freshly spiked recovery samples were analyzed along with the duplicate stored recovery samples and an untreated control sample. Stored samples and untreated control samples were extracted when recovery samples were extracted. It is unclear based on the notes on page 100 if extracts were frozen for later analysis or if only the whole product was frozen.

Potato peels were tested in ambient storage temperatures to simulate the shipping of field samples at ambient temperatures. Potato peels were fortified with 0.2 ppm 2,6-DIPN and analyzed after ambient storage for one day, three days, and seven days. Day 0 samples were analyzed immediately. Two freshly spiked recovery samples were analyzed along with the duplicate stored recovery samples and an untreated control sample. Stored samples and untreated controls samples were extracted when recovery samples were extracted. It is unclear based on the notes on page 112 if extracts were frozen for later analysis or if only the whole product was frozen.

Potato peels were tested after frozen storage temperatures. Potato peels were fortified with 0.2 ppm 2,6-DIPN and analyzed after periods of storage at -20°C. The storage periods tested were one week, two weeks, and three weeks. These periods approximated the potential time it could take before analysis of peels after they were received by the laboratory. Day 0 samples were analyzed immediately. Two freshly spiked recovery samples were analyzed along with the duplicate stored recovery samples and an untreated control sample. Stored samples and untreated controls samples were

extracted when recovery samples were extracted. It is unclear based on the notes on page 114 if extracts were frozen for later analysis or if only the whole product was frozen.

II. RESULTS

A. FIELD TRIAL

The results for the two field treatment group tests are given Tables 1 and 2 respectively for whole potatoes and peels. Untreated control samples ranged from< 0.02 to 0.03 ppm for whole potatoes and <0.02 to 0.11 ppm for peels. An unusually high background level was found for peel samples at day 0 and 30. The problem was traced to a storage bag used in shipping. (See below for troubleshooting results). Once a different bag was used the background value dropped to <0.02 to 0.03 ppm. The overall recovery for samples from whole potato tests was 84.8 ± 11.8%. The overall recovery for samples using the peel methods was 88.6± 13.7%. Both whole potatoes and peels show a loss of 2,6-DIPN over the 180 day storage period in Treatment 1. The majority of the 2,6-DIPN is associated with the peels. The 2,6-DIPN drops from 1.09 ppm after the initial treatment to 0.04 ppm in whole potatoes and from 3.42 ppm to 0.21 ppm in potato peels. In Treatment 2, both whole potatoes and peels showed declines in 2,6-DIPN after 30 days. The overall drop of 2,6-DIPN following a total of 60 ppm/lb treatment was 1.17 ppm to 0.18 ppm in whole potatoes, and 2.75 ppm to 0.84 ppm in potato peels.

Table 1. Results for Treatment Group 1: 20 ppm 2,6-DIPN/lb (ppm residue found by days after treatment (DAT))

0 DAT	30 DAT	90 DAT	180 DAT
Whole Potatoes			
Controls 0.03	0.02	<0.02	<0.02
Treated 1.09	0.30	0.08	0.04
Potato Peels			
Controls <0.02, (0.11)*	<0.02, (0.08)*	0.02	<0.02
Treated 3.42	2.12	0.52	0.21

Treatment values represent the mean of three samples (data from pages 22-24, MRID 44614113).
*Store bought laboratory control vs. field control showing contamination from plastic bag in shipping. Subsequent tests used different shipping bags.

Table 2. Results for Treatment Group 2: 60 ppm 2,6-DIPN/lb (ppm residue found by days after first treatment (DAFT), treatments made on 0, 60 and 120 days)					
0 DAFT	**30 DAFT**	**60 DAFT**	**90 DAFT**	**120 DAFT**	**180 DAFT**
Whole Potatoes					
Controls 0.03	0.02	<0.02	<0.02	<0.02	<0.02
Treated 1.17	0.31	1.43	0.44	1.60	0.18
Potato Peels					
Controls < 0.02 (0.11)*	<0.02 (0.08)*	<0.02	0.02	0.03	<0.02
Treated 2.75	1.90	3.21	1.33	3.23	0.84

Treatment values represent the mean of three samples (data from pages 22-24, MRID 44614113).
*Store bought laboratory control vs. field control showing contamination from plastic bag in shipping. Subsequent tests used different shipping bags.

B LABORATORY CONTROL TESTS

Troubleshooting tests were performed on a variety of field and laboratory plastics and glassware to determine if external contamination of the potato peels was occurring. The results are given in Table 3. DIPN was found to be a contaminant in the plastics used in the barrel flooring, barrel lining, disposable gloves, and plastic bags. The Ziploc bag and the glass jar with a Teflon liner were found to be free of DIPN and were subsequently used in the rest of the studies.

Table 3. Results of Troubleshooting Tests for Lab and Field Materials (ppm 2,6-DIPN found)

Sample Description	ppm found
Peeled potato- untreated control 152	<0.02
Peeled potato- untreated control 155	<0.02
Untreated control 153 + 0.02 ppm	0.02351 (117.5 % recovery)
Untreated control 154 + 1.0 ppm	0.85948 (85.9% recovery, 101.7% avg.)
Potato peel- untreated control 156	<0.02
Potato peel- untreated control 159 (same as 155 whole potato)	0.14
Untreated control peel 156 + 0.02 ppm (157)	0.02239 (112.0% recovery)
Untreated control peel 156 + 1.0 ppm (158)	0.94502 (94.5% recovery, 103.3% avg)
Reagent blank	0.00000
Barrel Flooring	0.02899 µg/square cm
Disposable glove	4.36151 µg/glove
Clear plastic Ziploc bag	0.00000 µg/bag
Black plastic bag	0.69762 µg/bag
Barrel #1 untreated lining	2.54958 (this may be a swipe sample)
Barrel #24 treated lining	25.24576 ppm (this may be a swipe sample)
CARDC Nalgene bottle	0.00000 µg/bottle
CARDC Albertsen's storage bag	14.05766 µg/bag
Glass jar with Teflon lined cap	0.00000 µg/jar
Reagent blank + 0.5 µg	0.46602 µg (93.2% recovery)
Reagent blank + 25.0 µg	23.25029 µg (93.0% recovery, 93.1% avg.)

Data from pages 119-121 of MRID 44614113.
*Values are corrected for recovery from freshly spiked controls.

A. STORAGE STABILITY

The results for the storage stability of whole frozen potatoes is given in Table 4. The background values of 2,6-DIPN from untreated controls ranged from 0.0000 ppm to 0.04042 ppm over the course of the study. The overall average recovery of freshly spiked control samples was 91.7 ± 5.4%. The results for the storage stability tests in potato peels at ambient temperature is given in Table 5. There was no detectable background level of 2,6-DIPN in the untreated control peels. The overall average recovery from freshly spiked controls was 95.4% ± 6.8%. The results for the storage stability tests in frozen potato peels are given in Table 6. The background concentration of 2,6-DIPN in untreated control peels ranged from 0.0000 ppm to 0.00851 ppm. The overall average recovery for freshly spiked control samples was 85.5% ± 3.4%. There was no noticeable loss of 2,6-DIPN in over 9 months of frozen storage in whole potatoes. There was a drop of about 10% in the recovery of 2,6-DIPN from peels after storage at ambient conditions for up to seven days. There did not appear to be a loss of 2,6-DIPN from peels when stored in the freezer.

Table 4. Storage stability of 2,6-DIPN in frozen whole potatoes.

Sample	Storage Duration	Corrected % Recovery (mean of two replicates)*
untreated controls	all times	<0.02
untreated + 0.2 ppm	day 0	81.4
untreated + 0.2 ppm	2 weeks	133.4
untreated + 0.2 ppm	1 month	81.9
untreated + 0.2 ppm	3 months	77.8
untreated + 0.2 ppm	6 months	75.2
untreated + 0.2 ppm	9 months	110.3

Some samples may be stored as frozen extracts, data taken from page 102 of MRID 44614113.
*Values are corrected for recovery from freshly spiked controls.

Table 5. Storage stability of 2,6-DIPN in potato peels at stored at ambient temperatures		
Sample	**Storage Duration**	**Corrected % Recovery* (mean of two replicates)**
untreated controls	all times	<0.02 to 0.04042
untreated + 0.2 ppm	day 0	83.0
untreated + 0.2 ppm	day 1	66.2
untreated + 0.2 ppm	day 3	70.9
untreated + 0.2 ppm	day 7	70.6

Some samples may be stored as frozen extracts, data taken from page 113 of MRID 44614113.
*Values are corrected for recovery from freshly-spiked controls.

Table 6. Storage stability of 2,6-DIPN in potato peels stored in the freezer.		
Sample	**Storage Duration**	**Corrected % Recovery* (mean of two replicates)**
untreated controls	all times	<0.02
untreated + 0.2 ppm	day 0	82.95
untreated + 0.2 ppm	1 week	87.6
untreated + 0.2 ppm	2 weeks	80.55
untreated + 0.2 ppm	3 weeks	85.8

Some samples may be stored as frozen extracts, data taken from page 115 of MRID 44614113.
*Values are corrected for recovery from freshly spiked controls.

F. DISCUSSION

The field trial study is designed to simulate actual field use of a pesticide product. The storage stability test is designed to test the stability of samples to storage (usually frozen storage) prior to final analysis in the laboratory. Generally the studies described in this document were well presented. Good laboratory procedures were followed. There were several instances where irregular results prompted a troubleshooting investigation outside of the normal protocol. One such activity identified plastic bags and other plastics used in the field trial as a possible source of contamination of 2,6-DIPN in untreated potato peels. The problem was corrected and a Ziploc bag showing no traces of 2,6-DIPN was used for subsequent samples. Poor recovery also prompted the development of a method specifically for potato peels that involved an additional cleanup step that was later used on the field plastic materials. While the study was well documented there were a few points left unclear, such as the occasions when store bought potatoes were used with test potatoes and whether or not frozen samples were stored as extracts or whole potatoes. There is no discussion as to how this related to the treatment of extracts of test potatoes (although there are statements that the storage conditions were the same for test potatoes and storage study potatoes.) The recovery for 2,6-DIPN ranged from around 60% to 133%. This is a very wide range and it was difficult to assess treatment effects. Overall the study is acceptable using Guidelines 860.1500 and 1380 for evaluation.

G. STUDY DEFICIENCIES

The major deficiency of this study was the lack of discussion and recommendations for the use of the storage stability test data. There was no indication if the field test samples were corrected in any way for storage effects. Generally, there was no discussion of data useability given somewhat variable recoveries. The recovery for 2,6-DIPN ranged from around 60% to 133%. There was a lack of discussion if the stored samples were whole samples or extracts. If the samples were extracts the sample container was not described. Minor deficiencies include the lack of a description of the barrel lining samples as to whether or not they were swipes or plastic samples cut from the barrels. Overall the study is acceptable using Guidelines 860.1500 and 1380 for evaluation.

DATA EVALUATION REPORT

AMPLIFY SPROUT INHIBITOR
2,6-Diisopropylnaphthalene

STUDY TYPE: PHYSICAL AND CHEMICAL CHARACTERISTICS
(Series 63, OPPTS 830.6302 - 830.6321)

Prepared for
Biopesticides and Pollution Prevention Division
Office of Pesticide Programs
U.S. Environmental Protection Agency
1921 Jefferson Davis Highway
Arlington, VA 22202

Prepared by
Chemical Hazard Evaluation Group
Toxicology and Risk Analysis Section
Life Sciences Division
Oak Ridge National Laboratory
Oak Ridge, TN 37930
Task Order No. 24

Primary Reviewer:		
Robin Brothers, Ph.D.	Signature:	Robin Brothers
	Date:	
Secondary Reviewers:		
Sylvia Milanez, Ph.D., D.A.B.T.	Signature:	
	Date:	
Robert H. Ross, M.S., Group Leader	Signature:	
	Date:	
Quality Assurance:		
Lee Ann Wilson, M.A.	Signature:	
	Date:	

Disclaimer

This Data Evaluation Report may have been altered by the Biopesticides and Pollution Prevention Division subsequent to signing by Oak Ridge National Laboratory personnel.

Oak Ridge National Laboratory, managed by Lockheed Martin Energy Research Corp. for the U.S. Department of Energy under contract number DE-AC05-96OR22464.

EPA Reviewer: Freshteh Toghrol, Ph.D. F. Toghrol, Date 12/14/99

DATA EVALUATION REPORT

STUDY TYPE: Physical and Chemical Characteristics (Series 63, OPPTS 8300.6302 - 830.6321)

P.C. CODE: 055803

DP BARCODE: D249750

CASE: 062532

SUBMISSION: S549086

MRID NO.: 44614103

TEST MATERIAL: AMPLIFY (technical grade active ingredient, 2,6-diisopropylnaphthalene; purity not specified)

SYNONYMS: 2,6-DIPN, DIPN

SPONSOR: Platte Chemical Company, 419 18 the Street, Greely, CO 80632

TESTING FACILITY: DARTEC, Inc., P.O. Box 129, Evans, Colorado 80620

TITLE OF REPORT: 2,6-Diisopropylnaphthalene (Technical Grade Material) (Series 63 Testing)

AUTHOR: John W. Irving

STUDY NUMBER: PLT-164

STUDY COMPLETED ON: June 26, 1998

EXECUTIVE SUMMARY: The physical and chemical characteristics of technical grade diisopropylnaphthalene were reported in MRID 44614103. The purity of the technical grade product was not specified but was used as a laboratory standard for the tests. The analytical methods used to determine the physical and chemical characteristics were appropriate for the purposes of this study.

Classification of the Study: Acceptable

COMPLIANCE: Good Laboratory Practices were followed. Quality Assurance Reports were filed by DARTEC. Data Confidentiality statements were provided.

A. PHYSICAL AND CHEMICAL CHARACTERISTICS (Series 63, OPPTS 830.6302 - 830.6321)

Color: Neutral, Munsell color system N 9.5, 90.0% R

Physical state: crystalline solid, observed at 25°C.

Odor: The test substance has no noticeable odor.

Melting point: The initial melting point range is 67.8°C to 68.9°C and the final stage melting point range is 68.9°C to 69.9°C, using the heated capillary tube method.

Boiling point: Not applicable, the test substance is not a liquid.

Density, bulk density, specific gravity: 0.49 g/ml determined at 25°C

Solubility: Distilled water: 0.02 ppm
Acetone: 339,183 ppm (34%)
Iso-octane: 190,401 (19%)
1-Octanol: 39,559 ppm (4%) all methods confirmed by gas chromatography

Vapor pressure: 6.1×10^{-4} torr at 25°C, using activated carbon adsorption tube traps and gas chromatography.

Dissociation constant: Stated as not a requirement for Subdivision M pesticides

Octanol/Water partition coefficient: The very low solubility of the DIPN in water (0.02 ppm) was at the lower limits of detection for DIPN. The solubility of DIPN in 1-octanol was 2,000,000 times greater (39,559 ppm, about 4%). This extreme difference in solubility supported the decision not to include this parameter in the study.

pH: 6.00 (0.1% w/v aqueous dispersion) at 20°C

Stability: The following tests were performed for stability with storage at 50°C for 28 days:
Neat compound: no change in DIPN concentration.
Exposure to Aluminum metal: No change in DIPN concentration.
Exposure to Copper metal: Reduction in DIPN of approximately 7%.
Exposure to Zinc metal: No change in DIPN concentration.
Sample exposed to 100 hours of UV light at room temperature: No change in DIPN concentration.

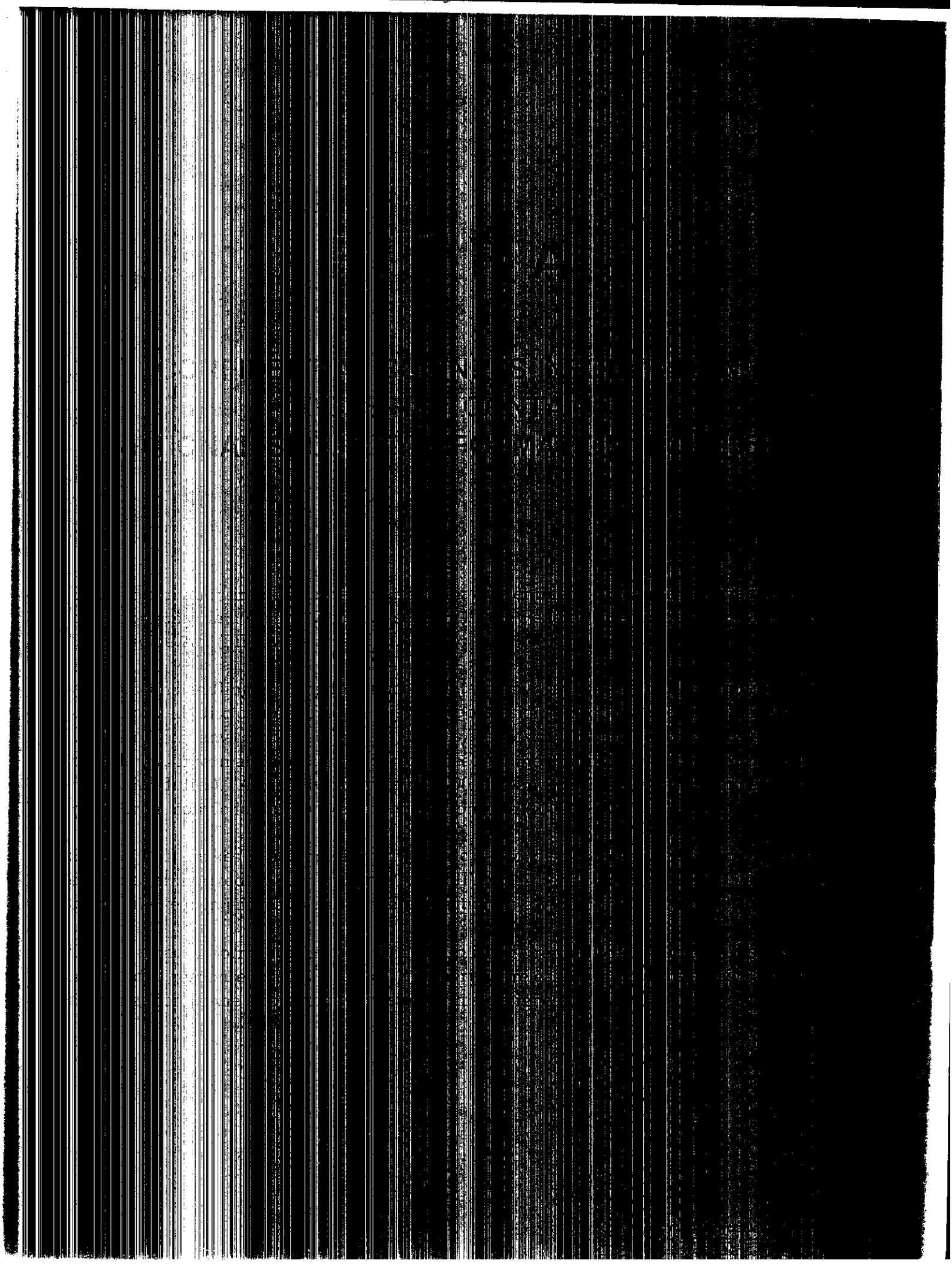
B. DISCUSSION

All of the necessary information was presented. The discussion for the differences in solubility of DIPN in water and octanol were sufficient for not including octanol/water partition coefficient in the study. The study was very well documented and presented.

C. STUDY DEFICIENCIES

None noted.

Classification of Study: Acceptable



DATA EVALUATION REPORT

AMPLIFY Sprout Inhibitor
2,6-Diisopropylnaphthalene

STUDY TYPES: Product Identity and Disclosure of Ingredients (OPPTS 830.1550)
Description of Beginning Materials (OPPTS 830.1600)
Manufacturing Process (OPPTS 830.1620/1650)
Discussion of Formation of Impurities (OPPTS 830.1670)

Prepared for

Biopesticides and Pollution Prevention Division
Office of Pesticide Programs
U.S. Environmental Protection Agency
1921 Jefferson Davis Highway
Arlington, VA 22202

Prepared by

Chemical Hazard Evaluation Group
Toxicology and Risk Analysis Section
Life Sciences Division
Oak Ridge National Laboratory
Oak Ridge, TN 37930
Task Order No. 24

Primary Reviewer: Robin Brothers, Ph.D.	Signature:	Robin Brothers
	Date:	
Secondary Reviewers: Sylvia Milanez, Ph.D.,D.A.B.T.	Signature:	
	Date:	
Robert H. Ross, M.S., Group Leader	Signature:	
	Date:	
Quality Assurance: Lee Ann Wilson, M.A.	Signature:	
	Date:	

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Oak Ridge National Laboratory, managed by Lockheed Martin Energy Research Corp. for the U.S. Department of Energy under contract number DE-AC05-96OR22464.

EPA Reviewer: Freshteh Toghrol, Ph.D. F. Toghrol, Date 9/11/98

DATA EVALUATION REPORT

STUDY TYPES: Product Identity and Disclosure of Ingredients (OPPTS 830.1550)
Description of Beginning Materials (OPPTS 830.1600)
Manufacturing Process (OPPTS 830.1620/1650)
Discussion of Formation of Impurities (OPPTS 830.1670)

CASE NO: 062532

PC CODE: 055803

DP BARCODE: D249750

SUBMISSION: S549086

MRID NO: 44614101

TEST MATERIAL: Amplify Sprout Inhibitor (technical grade active ingredient, 2,6-diisopropyl-naphthalene, 99.7%)

SYNONYMS: Naphthalene, 2,6-bis(1-methylethyl); DIPN; 2,6-DIPN; 2,6-Bis(1-methylethyl) naphthalene

STUDY NUMBER: KSC-HAD26

SPONSOR: Platte Chemical Company, P.O. Box 667, Greeley, CO 80632

TESTING FACILITY: Koch Chemical Company, P.O. Box 1875, Wichita, KS 67201

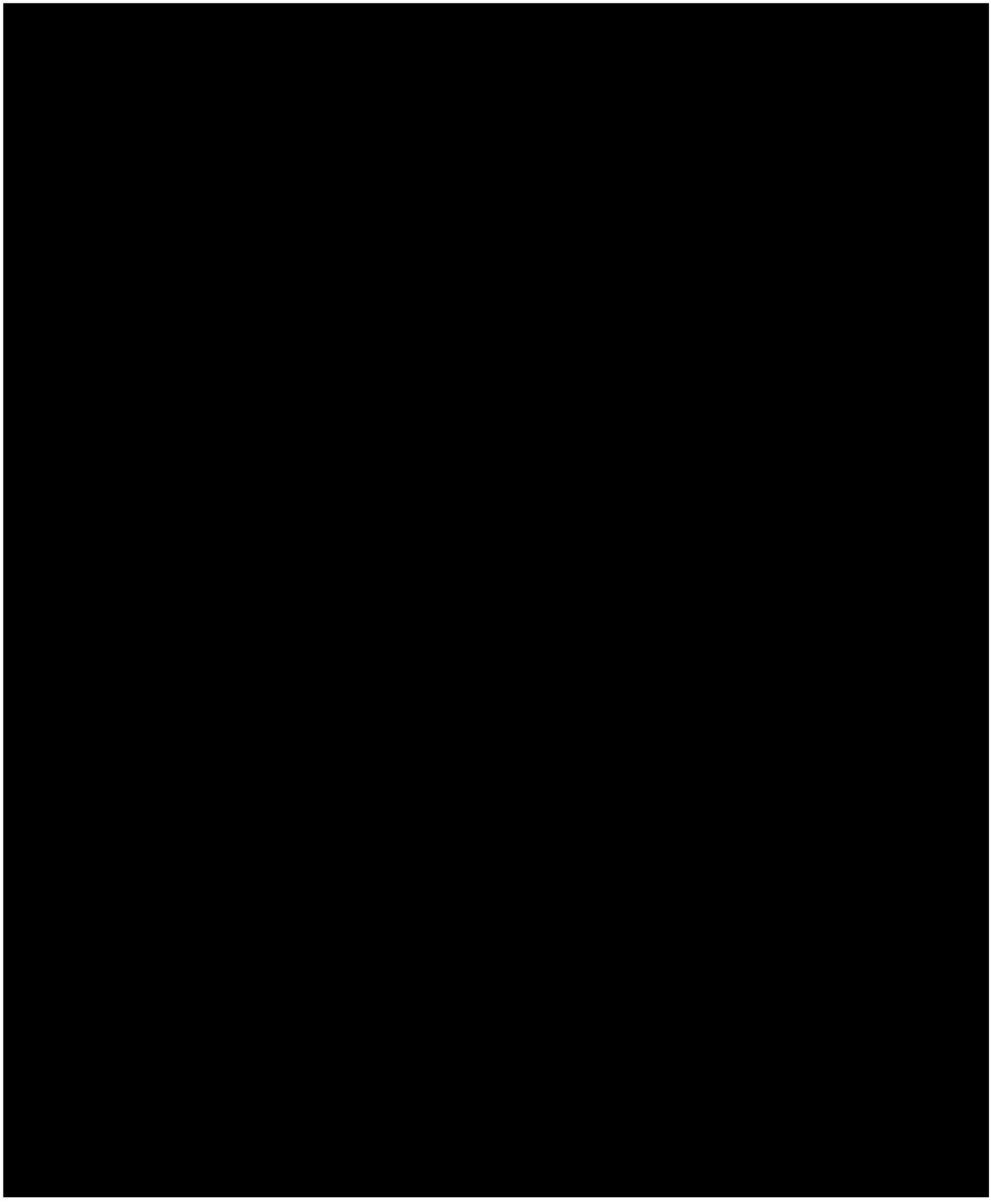
TITLE OF REPORT: 2,6-Diisopropylnaphthalene (Technical Grade Material) (Series 61 Testing)

AUTHOR: Andrew P. Komin

REPORT ISSUED: June 26, 1998

EXECUTIVE SUMMARY: The product identity, manufacturing process, and formation of impurities for Amplify Sprout Inhibitor are discussed in MRID 44614101. The active ingredient in Amplify is 2,6-diisopropylnaphthalene (99.7%, technical grade active ingredient). Amplify may also contain [redacted]

Manufacturing process information may be entitled to confidential treatment



Manufacturing process information may be entitled to confidential treatment

[redacted]

Classification: **Acceptable**.

DATA EVALUATION REPORT

AMPLIFY Sprout Inhibitor
2,6-Diisopropylnaphthalene

STUDY TYPES: **Analysis and Certification of Product Ingredients (OPPTS 830.1700)**
Certified Limits (OPPTS 830.1750)
Enforcement Analytical Method (OPPTS 830.1800)

Prepared for

Biopesticides and Pollution Prevention Division
Office of Pesticide Programs
U.S. Environmental Protection Agency
1921 Jefferson Davis Highway
Arlington, VA 22202

Prepared by

Chemical Hazard Evaluation Group
Toxicology and Risk Analysis Section
Life Sciences Division
Oak Ridge National Laboratory
Oak Ridge, TN 37930
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Primary Reviewer:		
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Oak Ridge National Laboratory, managed by Lockheed Martin Energy Research Corp. for the U.S. Department of Energy under contract number DE-AC05-96OR22464.

EPA Reviewer: Freshteh Toghrol, Ph.D. F. Toghrol, Date: 6/11/04

DATA EVALUATION REPORT

STUDY TYPE: Analysis and Certification of Product Ingredients (OPPTS 830.1700)
Certified Limits (OPPTS 830.1750)
Enforcement Analytical Method (OPPTS 830.1800)

P.C. CODE: 055803

DP BARCODE: D249750

CASE: 062532

SUBMISSION: S549086

MRID NO.: 44614102

TEST MATERIAL: Amplify Sprout Inhibitor (technical grade active ingredient: 2,6-diisopropylnaphthalene, (99.7% w/w))

SYNONYMS: DIPN, 2,6-DIPN

SPONSOR: Platte Chemical Company, 419 18th Street, Greeley, CO 80632

TESTING FACILITY: DARTEC Inc., P.O. Box 129, Evans, CO 80620

TITLE OF REPORT: 2,6-Diisopropylnaphthalene (Technical Grade Material) (Series 62/63 Series Testing)

AUTHOR: John W. Irving

STUDY NUMBER: PLT-163

STUDY COMPLETED ON: March 24, 1998

EXECUTIVE SUMMARY: The analysis of samples, certified limits, and enforcement analytical method for Amplify Sprout Inhibitor are given in MRID 44614102. This technical grade active ingredient consists of 99.7% (w/w) 2,6-diisopropylnaphthalene with certified limits of 100% and 97.5% (upper, lower). [redacted] The analysis of five lots of Amplify found 99.7% active ingredient with no significant differences between the five lots. The method for the certification of 2,6-diisopropylnaphthalene by gas chromatography is described.

Classification of the Study: Acceptable

COMPLIANCE: These studies did follow Good Laboratory Practices and quality Assurance reports were included. A statement of no data confidentiality was provided.

A. ANALYSIS AND CERTIFICATION OF PRODUCT INGREDIENTS (OPPTS 830.1700)

Five samples from each of five lots of Amplify were analyzed for 2,6-diisopropylnaphthalene. The results are given in Table 1. The mean 2,6-DIPN concentration was 99.7 ± 0.6% with a coefficient of variance of 0.6%. There was no significant difference among the means from each of the lots.

TABLE 1. Analysis of Five Lots of Amplify

Lot Number	Mean 2,6-DIPN concentration %	Standard Deviation
5553-01	99.3	0.2
5553-02	99.5	0.3
5553-03	99.7	0.4
5553-04	99.5	0.3
5553-05	100.2	0.9

B. CERTIFIED LIMITS (OPPTS 830.1750)

A Confidential Statement of Formula (CSF) was included in MRID 44614101 and was referenced in this section. Amplify Sprout Inhibitor consists of 99.7% (w/w) 2,6-diisopropyl-naphthalene with certified limits of 100% and 97.5% (upper, lower). [redacted] impurity identified, [redacted] No standard was available for the impurity and therefore no quantitative measurements could be performed.

E. ENFORCEMENT ANALYTICAL METHOD (830.1800)

The enforcement analytical method for 2,6-diisopropylnaphthalene is a gas chromatography method that uses a flame ionization detector and a 30 m by 0.53 mm fused silica column. A temperature gradient of 150°C to 200°C was employed for a total run time of 6.5 minutes. All samples and standards were prepared in acetone. Valerophenone was the internal standard and 2,6-diisopropylnaphthalene standard (99.0%) from Acros Organics was used as and external standard.

G. DISCUSSION

All the information was adequate to meet the guidelines requirements for analysis of samples, certified limits, and enforcement analytical method. There were no significant differences in the 2,6-DIPN means from each of the lots. No standard was available for the impurity and therefore no quantitative measurements could be performed and no certified limits are given.

H. STUDY DEFICIENCIES

No standard was available for the impurity and therefore no quantitative measurements could be performed and no certified limits are given.

Classification of the Study: **Acceptable**

Confidential Statement of Formula may be entitled to confidential treatment

FOR EXPERIMENTAL USE ONLY

Amplify®
Sprout Inhibitor

AEROSOL GRADE POTATO SPROUT INHIBITOR.

ACTIVE INGREDIENTS:	BY WEIGHT
Diisopropylnaphthalene	100%
TOTAL	100%

NOT FOR SALE TO ANY PERSON OTHER THAN A PARTICIPANT OR COOPERATOR OF THE EPA APPROVED EXPERIMENTAL USE PROGRAM.

Covered under U.S. Patent Number 5,622,912

KEEP OUT OF REACH OF CHILDREN
CAUTION

EPA EXPERIMENTAL USE PERMIT NO._____
EPA REG. NO. _____
EPA EST. NO. _____
NET CONTENTS _____

IHT 06/98

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS & DOMESTIC ANIMALS
CAUTION

Harmful if swallowed, inhaled, or absorbed through skin. Avoid breathing vapors, fog or dust. Avoid contact with eyes, skin and clothing. In case of contact immediately flush with plenty of water. Get medical attention if symptoms persist. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

STATEMENT OF PRACTICAL TREATMENT

IF SWALLOWED: Do not induce vomiting. Aspiration hazard, if vomiting occurs, material may enter lungs and cause chemical pneumonia.
IF IN EYES: Flush with plenty of water for at least 15 minutes, if irritation persists, get medical attention.
IF ON SKIN: Wash thoroughly with soap and water.
IF INHALED: Move person to fresh air, if breathing has stopped start artificial respiration, get medical attention.
FOR A MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL: 1-800-228-5635, EXT. 136, OR CALL COLLECT, 612-851-8180, EXT. 136.

EMERGENCY INFORMATION

For spill, leak, fire or accident involving this material, call day or night CHEMTREC 1-800-424-9300.

ENVIRONMENTAL HAZARDS

Do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water by disposal of equipment wash waters.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

NOTICE

Amplify® Sprout Inhibitor is used as an aerosol for treating potatoes for sprout inhibition during storage.
If entry into the storage area is necessary during or immediately following application before the fog has settled, protective clothing and respirators must be worn.
Do not apply in the field.
Do not use on seed potatoes.
Do not allow vapors or fog to come into contact with, or get near to, storage areas used for seed potatoes.
Let six months elapse before using treated storage area for seed potatoes. Air system components (including ducts) and building must be thoroughly cleaned before the area is used for storage of seed potatoes.

TREATMENT OF STORAGES WITH RECIRCULATING AIR SYSTEMS

Place discharge from aerosol generator in the plenum, positioned to allow for thorough mixing and even distribution. Shut down the humidification equipment. Set ventilation system for recirculation and seal storage building. Reduce air flow to deliver up to 5.0 CFM per ton (0.25 CFM per cwt.) or use the lowest air flow available. Check for uniform air distribution throughout the potato pile. Maintain the system on recirculation setting for at least 4 hours or until thermal fog has completely settled. Reactivate the storage ventilation and humidification systems to desired setting.

TREATMENT OF STORAGES OR OTHER AREAS THAT DO NOT HAVE RECIRCULATION AIR SYSTEMS

Prior to placing potatoes in the area to be treated, make the following preparations: On the floor of the area, install an air duct approximately 12 inches by 12 inches running the length or width of the potato pile leaving a space at one end for air circulation. The ducts should be spaced a maximum of 10 feet apart and can be perforated metal pipe, slotted wood construction or if the potatoes are in bags, by bridging a 12 inch space between two rows of bags.
At the open end of each duct in the false wall space, where the fog is to be introduced position a squirrel cage fan to force air through the duct and up through the pile. Set fans to deliver up to 5.0 CFM per ton (0.25 CFM per cwt). Check for uniform air distribution throughout the potato pile.

When the area is filled and ready to be treated, the following steps should be taken:
Shut down any ventilating and humidification equipment, and seal the structure.
Start the squirrel cage fans.
Introduce the fog as near as possible to the bottom of the false wall space containing the fans.
Continue running fans for at least 4 hours or until the fog has completely settled.
Reactivate ventilation and humidification equipment to the desired settings.
NOTE: When treating a small area such as a trailer truck or railroad car, it is recommended that a low volume aerosol generator be used.

APPLICATION

Short Term Storage
Amplify® Sprout Inhibitor can be applied alone to aid in sprout suppression of potatoes for short term storage. Apply prior to end of the natural dormancy period of the potato and before sprouting occurs.

Apply at a rate of (16.6 ppm) or 1.0 pound active ingredient per 600 cwt. of potatoes.

AMPLIFY® SPROUT INHIBITOR
EPA REG. NO.

Repeat applications may be required depending on the physiological age of potatoes due to stress during the growing season or storage conditions. One application of 16.6 ppm has shown to suppress sprouting for up to 2 months.

Apply a maximum of three times per season. Do not exceed (49.8 ppm) or 3 pounds total active ingredient per storage season. Reapply at first sign of sprouting.

Use only if some sprouting is acceptable. Amplify®, when used alone, will suppress sprouting, but some sprouting may occur.

Amplify® Sprout Inhibitor APPLIED IN COMBINATION WITH SPROUT NIP® 7 AEROSOL and CIPC 98A®.

Amplify® Sprout Inhibitor has demonstrated to have a synergistic effect when applied with CIPC product such as SPROUT NIP® 7 AEROSOL AND CIPC 98A®. Apply prior to end of the natural dormancy period of the potato and before sprouting occurs.

Apply Amplify® Sprout Inhibitor at a rate of (16.6 ppm) or 1.0 pound active ingredient per 600 cwt of potatoes.
Apply SPROUT NIP® 7 AEROSOL or CIPC 98A® at a rate of (8.33-24 ppm) or 0.50 - 1.45 pound active ingredient per 600 cwt. of potatoes.

Extended Storage
If potatoes are held in storage longer than originally anticipated, the potatoes may be retreated. At the first sign of sprouting, potatoes may be retreated with Amplify® Sprout Inhibitor, SPROUT NIP® 7 AEROSOL or CIPC 98A®, or a combination of Amplify® Sprout Inhibitor SPROUT NIP® 7 AEROSOL or CIPC 98A®.

Apply Amplify® Sprout Inhibitor at a rate of (16.6 ppm) or 1.0 pound active ingredient per 600 cwt. of potatoes. Apply a maximum or three times per season. Do not exceed (49.8 ppm) or 3 pounds total active ingredient per storage season.

Apply SPROUT NIP® 7 AEROSOL or CIPC 98A® at a rate of up to (15.6 ppm) or 0.95 pound active ingredient of SPROUT NIP® 7 AEROSOL or CIPC 98A®. Do not exceed (24 ppm) or 1.45 pounds active ingredient of SPROUT NIP® 7 AEROSOL or CIPC 98A® per storage season.

Refer to the SPROUT NIP® 7 AEROSOL and the CIPC 98A® labels for specific directions for proper use of these products.

1 cwt. = 1.67 bu. = 2.5 cubic feet and 1 bu. = 60 lbs. = 1.5 cubic feet

STORAGE AND DISPOSAL

STORAGE: Keep container closed. Do not contaminate water, food or feed by storage or disposal. This product may inhibit germination of seed potatoes.
PESTICIDE DISPOSAL: Pesticide wastes are toxic. Improper disposal of excess product, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.
CONTAINER DISPOSAL: Do not reuse as a container. Triple rinse (or equivalent). Then offer recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or procedures allowed by state and local authorities.

NOTICE

PLATTE WARRANTS THAT THIS PRODUCT CONFORMS TO THE CHEMICAL DESCRIPTION ON THE LABEL THEREOF AND IS REASONABLY FIT FOR THE PURPOSES STATED ON SUCH LABEL ONLY WHEN USED IN ACCORDANCE WITH THE DIRECTIONS UNDER NORMAL USE CONDITIONS. IT IS IMPOSSIBLE TO ELIMINATE ALL RISKS INHERENTLY ASSOCIATED WITH THE USE OF THIS PRODUCT. CROP INJURY, INEFFECTIVENESS, OR OTHER UNINTENDED CONSEQUENCES MAY RESULT BECAUSE OF SUCH FACTORS AS WEATHER CONDITIONS, PRESENCE OF OTHER MATERIALS, OR THE MANNER OF USE OR APPLICATION, ALL OF WHICH ARE BEYOND THE CONTROL OF PLATTE. IN NO CASE SHALL PLATTE BE LIABLE FOR CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT. ALL SUCH RISKS SHALL BE ASSUMED BY THE BUYER.
EXCEPT AS EXPRESSLY PROVIDED HEREIN, PLATTE MAKES NO WARRANTIES, GUARANTEES, OR REPRESENTATIONS OF ANY KIND, EITHER EXPRESSED OR IMPLIED, OR BY USAGE OF TRADE, STATUTORY OR OTHERWISE, WITH REGARD TO THE PRODUCT SOLD, INCLUDING, BUT NOT LIMITED TO, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, USE OR ELIGIBILITY OF THE PRODUCT FOR ANY PARTICULAR TRADE USAGE. BUYER'S OR USER'S EXCLUSIVE REMEDY, AND PLATTE'S TOTAL LIABILITY, SHALL BE FOR DAMAGES NOT EXCEEDING THE COST OF THE PRODUCT.

FORMULATED FOR
PLATTE CHEMICAL CO.
150 SO. MAIN STREET FREMONT, NEBRASKA 68025-5697

13544

R134964

Chemical:	Naphthalene,2,6-bis(1-methylethyl)-
	PC Code: 055803
HED File Code:	41500 BPPD Tox/Chem
Memo Date:	10/19/2006
File ID:	DPD249753
Accession #:	000-00-9001

HED Records Reference Center
1/4/2007